

# Assessing Customer Lifetime Value in Non-contractual Settings

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Datancia

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# Outline

The Company

The Tool

The Problem

The Projects



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# Datancia

## Introduction

**Datancia** is a young company created by team of passionate professionals dedicated to transform internal and external generated data into useful information for business activities management and improvement. Datancia team has a perfect blend of **business expertise** and **academic support**. Professors from UPC (ETSEIB section) Statistics Department are involved in its activities while other company members come from a long experience in major international companies.



# Datancia

## Areas of Expertise

### Customer Management

Predict future consumer purchasing behavior based on past purchasing patterns:

1. Based on past activity
2. Based on frequency of visits.
3. Assessing the Customer Lifetime Value



### Emotional design

Discovery of design properties that convey the desired sensations in a product using Kansei Engineering

### Distribute Machine Monitoring

Monitor the data from a farm of remotely distributed machines in order to:

1. Optimize machine operation,
2. and perform predictive maintenance.

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# Customer Retention Services

## Customer profiling

Datancia tool to implement its Customer Management expertise is named Customer Retention Services ©. It is focused on customer retention using passive data.

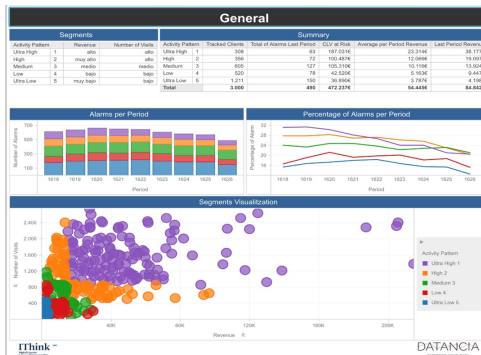
It uses several probability models to track and profile each individual customer a company has. It identifies changes in the customers purchasing habits and estimates their probability of not doing any further transaction. It also assesses the revenue impact to the firm of each customer at risk of leaving.



# Customer Retention Services

## Aggregate view

Customer Tracking can be done at individual or group level. Selected queries of customers allow to view the evolution of cohorts of customers at risk and their revenue at risk over time.





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The Company

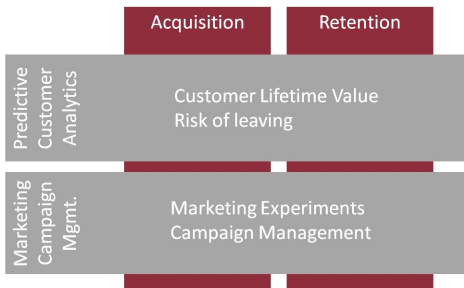
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**The Problem**

The Projects



## The Problem: tool location



# The Problem

## 1. Customer Lifetime Value

- ▶ The current Customer Lifetime Value is estimated via probability models and Bayesian inference.
- ▶ It makes some simplifying assumptions such as independence between visiting frequency and ticket value.
- ▶ It performs very well when estimating overall revenue for a large set of customers but not so well when assessing individual customer value.

## 2. Acquisition

- ▶ Current model works on Retention phase of Customer Management: we track customers who have been active for some period of times, identify purchasing pattern changes and assess likelihood of ending in churn.
- ▶ The model does not assess the "quality" of new acquired customers and the probability of doing future purchases. This problem is key to new enterprises trying to increase its customer base or to businesses in high growth mode.

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The Company

The Tool

The Problem

**The Projects**



## Project One: Customer Lifetime Assessment

Given a set of supermarket transactions for loyalty card registered users, improve the prediction of customer expenses over a future given period:

- ▶ Review available Customer Lifetime Value Techniques focused on probability models and purchase value estimation.
- ▶ Select a subset of purchase value models for the available data (e.g. Glady et al. [2009] modified Pareto/NBD)
- ▶ Implement the models and assess their performance at forecasting individual CLV. customer value.

Methodology: **Bayesian Modeling** and **Multivariate Analysis**

## Project Two: Customer Acquisition Classifier

Given a set of labeled (1=customer did not buy again, 0=customer bought again) first purchasing transactions from a supermarket, create a "interpretable" classifier for future first transactions customers:

- ▶ Review available classification techniques for first time purchases.
- ▶ Select an "interpretable" technique for future purchasing classification.
- ▶ Implement the model and assess its performance over a given test set.

Methodology: **Generalized Linear Models** and **Discriminant Analysis**

## Benefit for the Students

- ▶ Applied acquired knowledge on real-life cases.
- ▶ Work in a challenging and methodological rigorous company.
- ▶ Possibility to start a career at Datancia which is in the process of hiring junior professionals.



# Thank you

